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**ABSTRACT**

A method for calibrating a medical system capable of generating a magnetic field for tracking a position of a medical device has various steps such as defining a mapping volume within the generated magnetic field and placing a metallic object within the mapping volume. A sensor is aligned at a first point within the mapping volume and the magnetic field at the first point is measured with the sensor to establish a first coordinate position ( $X_i, Y_i, Z_i$ ). An interpolation technique in one embodiment and an extrapolation technique in another embodiment are used in the calibration method.

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